

- COMPLETED - NB

Helitowcart - DESIGN CHANGE REQUEST-ORDER (ECR/ECO)	F20-01	Page 1 of 3
Reviewed & approved by:	/	2006 09 09

A- REQUEST

ECR : -

ECO : 1

Nature of proposed change :	CREATE NEW PAD WITHOUT POCKETS TO KEEP ROCKS FROM STAYING IN & THUS ELIMINATING RISK OF ROTOR DAMAGE	
Reason :	REQUEST FROM HELI CAN. IT APPEARS THEY HAD A ROCK HIT A TAIL BLADE & CAUSE IS POSSIBLE FAULT FROM BEARPAW PAD.	
Submitted By :	CLAUDE BOUCÉ, HELI CAN	NATHALIE → BARBEAU
Date :	2008.01.15	

B- IMPACT ANALYSIS

Product Manager	MODIF TO PAD IS MEETING NEED & IS A + FOR SAFETY. Signature: <u>N. Barbeau</u> /date: 2008.01.15
Operation Manager	STOCKS LOW ON PREVIOUS MODEL: OK PLEASE KEEP PREVIOUS MODEL AVAILABLE/ACCEPTABLE FOR SERVICE Signature: <u>N. Barbeau</u> /date: 2008.01.15
Quality System Manager	MINOR CHANGES TO CONTROL PLAN. No problem Signature: <u>N. Barbeau</u> /date: 2008.03.15
Regulatory affairs Manager	HAVE CONSULTED TRANSP. CAN REPRESENTATIVE. (M. Iggy) THIS MODIF IS MINOR. OK. Signature: <u>N. Barbeau</u> /date: 2008.01.15
Supplier A	N/A Signature: _____ /date: _____
Supplier B	N/A Signature: _____ /date: _____
Other	N/A Signature: _____ /date: _____

Helitowcart - DESIGN CHANGE REQUEST-ORDER (ECR/ECO)	F20-01	Page 2 of 3
Reviewed & approved by:	/	2006 09 09

C- DECISION

Risk analysis	<ul style="list-style-type: none"> • NEW MODEL WOULD REDUCE RISK OF ROCKS GETTING STUCK ON PAD POCKETS. $\Rightarrow \downarrow$ RISK OF ROTOR/BLADE DAMAGE. <p><u>NOTE:</u> Previous model is widely used in the industry. It is still a very low risk design & possible occurrence of rocks issue is still very remote so change would not involve risks already on the market.</p> <p>Signature: <u>A. Bartlomiej</u> /date: <u>08. 01. 15</u> NB</p>
Decision	<ul style="list-style-type: none"> • CREATE NEW PAD MODEL. • STILL ALLOW THE USE OF PREVIOUS PAD MODEL IN DOCUMENTATION. <p>Signature: <u>A. Bartlomiej</u> /date: <u>08. 01. 15</u> NB</p>

D- ACTION PLAN

Action	Resp	Due date :	Verified by :
GET NEW DESIGN FROM MIRKO	NB	08. 02. 15	NB 08. 03. 12
GET NEW PADS	NB	08. 02. 28	NB 08. 03. 12
GET REVISED DOCUMENTATION	NB	08. 03. 05	NB 08. 03. 12
UPDATE Q.CTRL PLAN	NB	08. 03. 12	NB 08. 03. 12
ISSUE NEW BEARINGS	NB	08. 03. 15	NB 08. 03. 13

Effective date :
2008. 03. 13

Effective lot no :
+ 080312-01
080211-01

Helitowcart - DESIGN CHANGE REQUEST-ORDER (ECR/ECO)	F20-01	Page 3 of 3
Reviewed & approved by:	/	2006 09 09

E- VERIFICATION

Verified Elements :

By/
date :

New Job approved & manufactured	
Product meets req'ts no issues	
Job caught & slight weight reduction 08.03.14	
All Documents + Records + New lots	NB
Processed fully. Job Completed	WB

F- VALIDATION

Validated Elements :

By/
date :

Product now meets original request/need.	08.03.14
Stock does not stay on as pool is streamlined. DR	DR

G- CLOSURE

I confirm that the designated change has been performed successfully :

Signature : D. Baier /date : 2008.03.14

1	DWG No VNR106-S.DWG			SHT No OF 2			
REVISIONS							
<input checked="" type="checkbox"/> 1	REWORKABLE	<input type="checkbox"/> 2	NONREWORKABLE	<input type="checkbox"/> 3	NOTED	<input type="checkbox"/> 4	NA
ZONE	REV	DESCRIPTION				DR. & DATE	STRESS
	—						

D

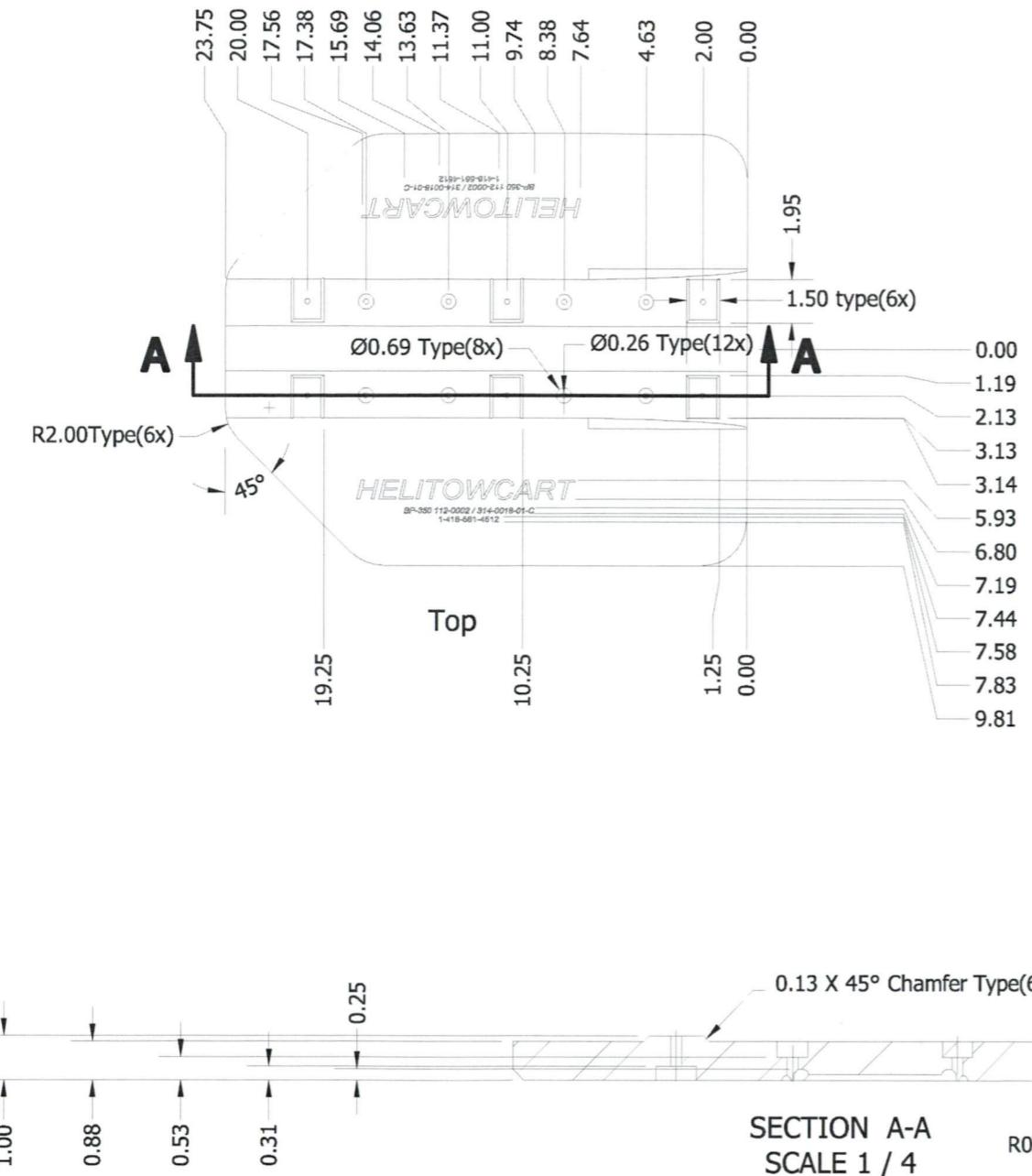
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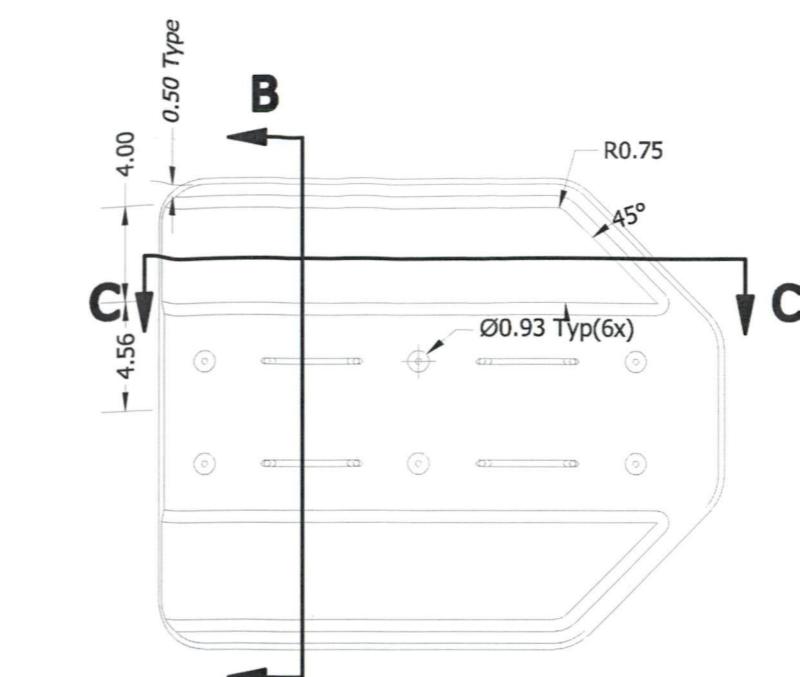
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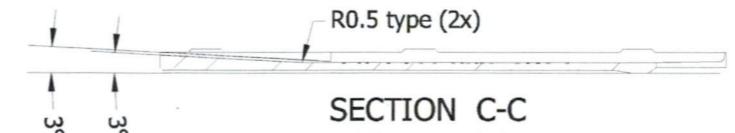
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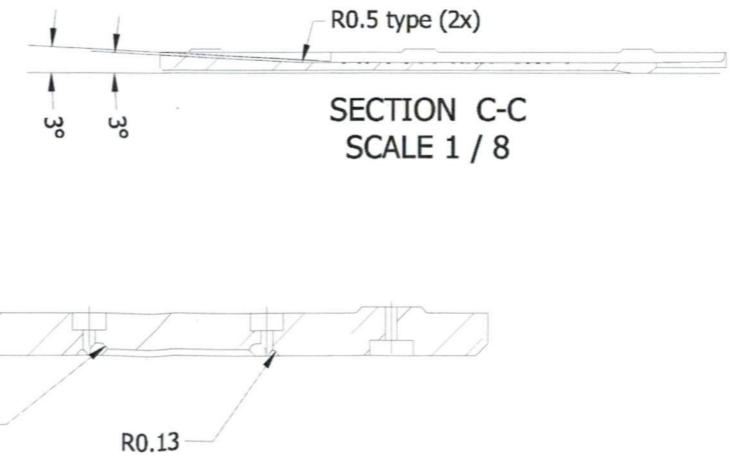
SECTION A-A
SCALE 1 / 4



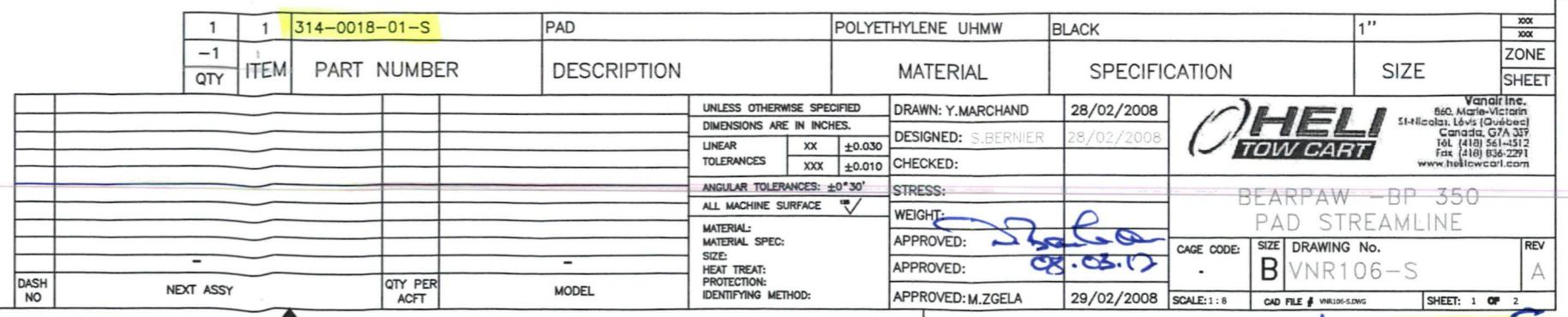
BOTTOM VIEW



SECTION C-C
SCALE 1 / 8



SECTION A-A
SCALE 1 / 4



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4

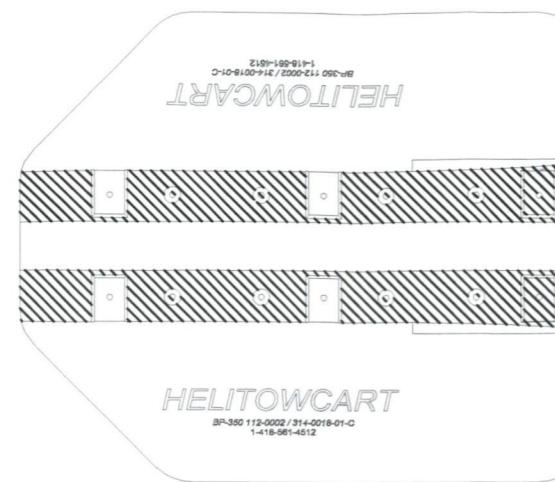
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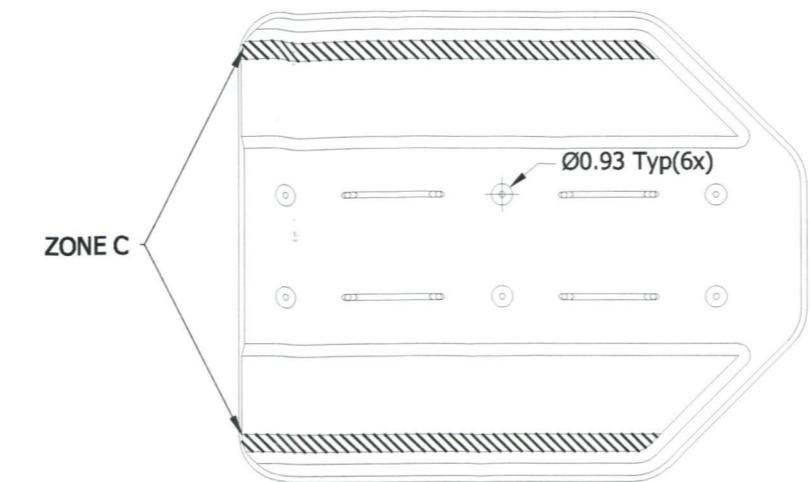
314-0018-01-5-A

D. Baeten 08.03.12

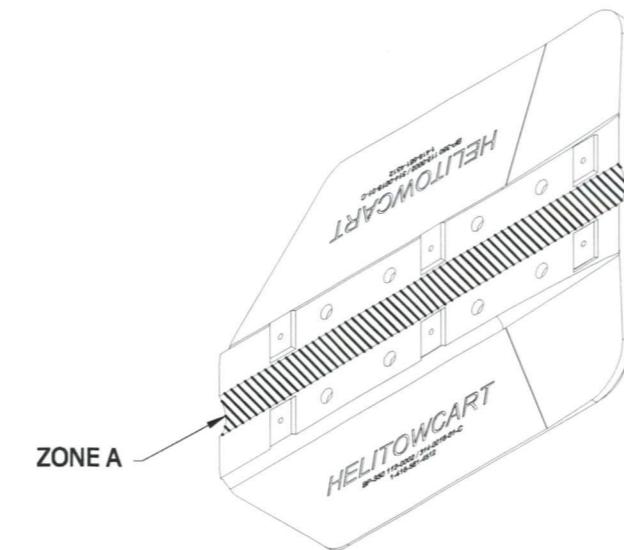
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TOP VIEW



BOTTOM VIEW

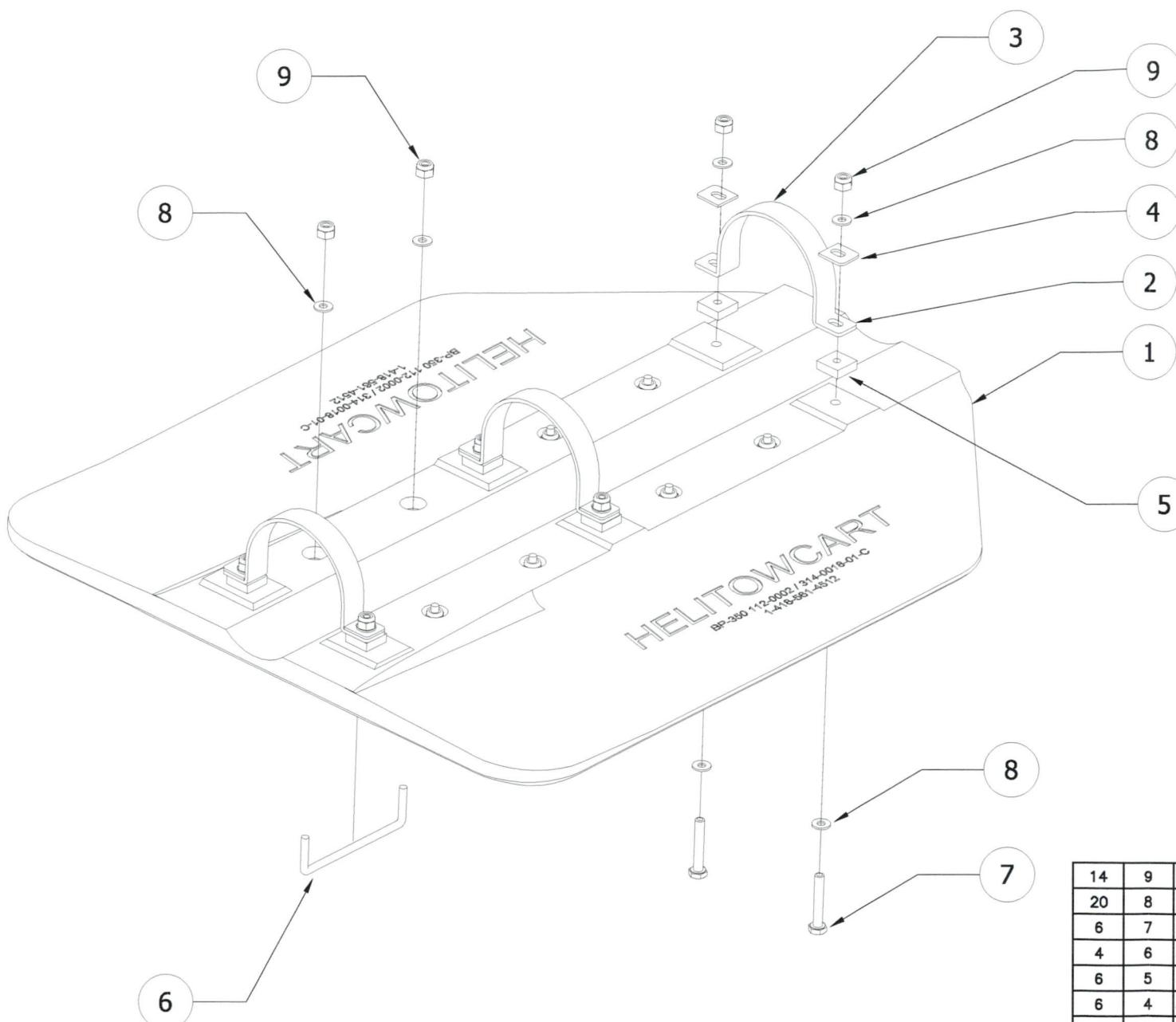


-1	ITEM	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE	ZONE SHEET
				DRAWN: Y.MARCHAND	28/02/2008		
			UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.	DESIGNED: S.BERNIER	28/02/2008		
			LINEAR TOLERANCES: XX ± 0.030 XXX ± 0.010	CHECKED:			
			ANGULAR TOLERANCES: $\pm 0^\circ 30'$	STRESS:			
			ALL MACHINE SURFACE ✓	WEIGHT:			
				APPROVED:			
				APPROVED:			
				APPROVED: M.ZGELA	29/02/2008		
				APPROVED: M.ZGELA	29/02/2008	SCALE: 1:8 CAD FILE: VNR106-S.DWG	SHEET: 2 OF 2
DASH NO	NEXT ASSY	QTY PER ACFT	MODEL				

THE DESIGNER'S PROPERTY IN THIS DRAWING IS THE EXCLUSIVE PROPERTY OF HELI TOW CART AND ITS ACCEPTANCE OF THIS DRAWING BY THE RECIPIENT AGREES THAT IT WILL NOT BE USED FOR THE PURPOSE OF MANUFACTURE OR PRODUCTION OF THE PART OR ASSEMBLY SHOWN HEREIN UNLESS APPROVED OR OTHERWISE AGREED ON IN WRITING BY HELI TOW CART.
EXCEPT AS AUTHORIZED IN WRITING BY HELI TOW CART

HELI
TOW CART
BEARPAW - BP 350
PAD STREAMLINE

Vanair Inc.
860, Marie-Victorin
St-Nicolas, Lévis (Québec)
Canada G7A 3J7
Tel. (416) 561-4512
Fax (416) 561-2271
www.helitowcart.com



NOTE: ICEBLADE ASSEMBLY, ITEM 6, CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

THE DESIGNER DEPICTED IN THESE DRAWINGS IS THE EXCLUSIVE PROPERTY OF HELI TOW CART AND IN ACCORDANCE WITH THE DRAWING THIS DOCUMENT IS FOR INTERNAL USE ONLY AND IS NOT FOR THE PURPOSE OF PRODUCTION OR FURTHER DRAFTING. ANY OTHER USE, WHETHER PARTIAL OR WHOLE, IS PROHIBITED UNLESS EXPRESSLY AGREED UPON IN WRITING BY HELI TOW CART.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE	ZONE	SHEET
20	8	263-0001-17-A	WASHER AN960-416			1/4	xxx	
6	7	261-0001-17-A	BOLT AN4-14A			1/4-28 UNF	xxx	
4	6	314-0005-15-A	ICEBLADE ASSEMBLY			xxx	xxx	
6	5	314-0012-01-A	FILLER BLOCK			1/4"	xxx	
6	4	314-0007-15-B	SLOTTED CLIP SUPPORT			xxx	xxx	
3	3	314-0021-01-A	SHRINK			1" x 6 1/4"	xxx	
3	2	314-0019-15-A	U SHAPED CLIP			xxx	xxx	
1	1	314-0018-01-S-A	PAD STREAMLINE	POLYETHYLENE UHMW	BLACK	1"	xxx	
-1								

DASH NO	NEXT ASSY	QTY PER ACFT	MODEL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.	DRAWN: Y.MARCHAND	28/02/2008	Vandair Inc. 860, Marie-Victorin St-Hilaire, Lévis (Québec) G6A 4L7 Tel: (418) 854-5312 Fax: (418) 854-2291 www.helitowcart.com
				LINAR TOLERANCES	XX ± 0.030	DESIGNED: S.BERNIER	
				XXX	± 0.010	CHECKED:	
				ANGULAR TOLERANCES: $\pm 0^\circ 30'$	STRESS:		
				ALL MACHINE SURFACE ✓	WEIGHT:		
				MATERIAL: MATERIAL SPEC: SIZE: HEAT TREAT: PROTECTION: IDENTIFYING METHOD:	APPROVED: <i>D. Belanger</i>	08.03.10	
					APPROVED: M.ZGELA	29/02/2008	
					APPROVED: DAD FILE # 112-0002-00-S	A	
				SCALE: 1:4			SHEET: 1 OF 1



Master Document List

Helitowcart

Eurocopter Model AS 350/355 Series Helicopters Installation of BearPaw Model BP350

Report: HTC-MDL-BP-AS350/355-1000 (Rev B)

APPROVED BY:

DATE: JANUARY 29, 2007

Mirko Zgela
Design Approval Representative DAR #310

Revision	Revision Date	Revision of Entry	Entered by
A	Nov 22, 2006	Initial issue	N/A
B	Jan 28, 2007	Revision performed to the Installation Instructions (Doc # HTC-314-0020-00-B).	M.Z.



1.0 MASTER DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
AAC-CPL-BP-AS350/355-1000	Compliance Plan – Eurocopter Model AS350/355 Series Helicopters – Installation of BearPaw Model BP350	NC	DAR 310	Nov 22, 2006
HTC-314-0020-00-B	BearPaw Model BP350 – Installation Instructions – AS350/355 Series Helicopters	B	DAR 310	Jan 29, 2007
AAC-STR-BP-AS350/355-1000	Structural Substantiation – Helitowcart Inc. BearPaw Model BP350	NC	DAR 310	Nov 20, 2006
AAC-FTR-C-GZNC	Simple External Modification – Applicant's Flight Test Plan/Report	NC	DAR 310	Nov 21, 2006

2.0 MASTER DRAWINGS

Drawings #	Title	Revision Status	Approval by	Date
112-0002-00	BearPaw BP350 - Assembly	B	DAR 310	Nov 20, 2006
VNR084	BearPaw – Iceblade	R01	DAR 310	Apr 24, 2006
VNR085	BearPaw – Iceblade Threaded Rod	R01	DAR 310	Apr 24, 2006
VNR086	BearPaw – Iceblade Assembly	R01	DAR 310	Apr 24, 2006
VNR106	BearPaw BP350 - Pad	R02	DAR 310	Sept 26, 2006
VNR107	BearPaw BP350 – U Shaped Clip	R01	DAR 310	Sept 29, 2006
VNR089	Bearpaw – Slotted Clip Support	R04	DAR 310	July 31, 2006
VNR099	Filler Block ¼"	R01	DAR 310	Aug 8, 2006

3.0 REFERENCE DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
314-0009-01-A	Ultra High Molecular Weight Polyethylene – Typical Properties	A	N/A	May 24, 2006
314-0008-01-A	Propriétés du UHMW TIVAR	A	N/A	May 24, 2006
314-0017-05-A	Heat Shrink Specifications	A	N/A	Sept 6, 2006

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314-0020-00-B

BearPaw Model BP350

Installation Instructions – AS350/355

INTRODUCTION

Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw Model BP 350 for the AS 350 and AS 355 series helicopters.

General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance when installed on your helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table (1):

Table 1 – Helitowcart Customer Support

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	860 Marie-Victorin St-Nicholas, Levis, Quebec, Canada, G7A 3S9	Tel:1 (418) 561-4512 Fax:1 (418) 836-2291 info@helitowcart.com

Helicopter Effectivity

This installation instruction applies to the following helicopter models:

Table 2 – Helicopter Model Effectivity

Make	Model	Transport Canada Type Certificate Data Sheet
Eurocopter	AS 350 D	H-83
Eurocopter	AS 350 D1	
Eurocopter	AS 350 B	
Eurocopter	AS 350 B1	
Eurocopter	AS 350 B2	
Eurocopter	AS 350 B3	
Eurocopter	AS 350 BA	
Eurocopter	AS 355 E	
Eurocopter	AS 355 F	
Eurocopter	AS 355 F1	
Eurocopter	AS 355 F2	H-87
Eurocopter	AS 355 N	

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314-0020-00-B
BearPaw Model BP350
Installation Instructions – AS350/355

Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

INSTALLATION

BearPaw Installation

Reference Documentation:

- [1] Helicopter Maintenance Manual AS 350 or AS 355 as applicable.

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] as applicable to your helicopter model to allow a ground clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);

Note: The BearPaw Model BP350 can be installed with or without the skid tube wear shoes.

Step 2: IceBlade Installation

Note: The BearPaw Model BP350 can be installed with or without the IceBlades

- With IceBlade Option
- Install ice blades (Qty: 4) (Iceblades P/N 314-0005-15) under BearPaw pad as per drawing (112-0002-00) provided at Annex A.
- Secure ice blades with washer (Washer P/N 263-0001-17) and nut (P/N 262-0001-17).

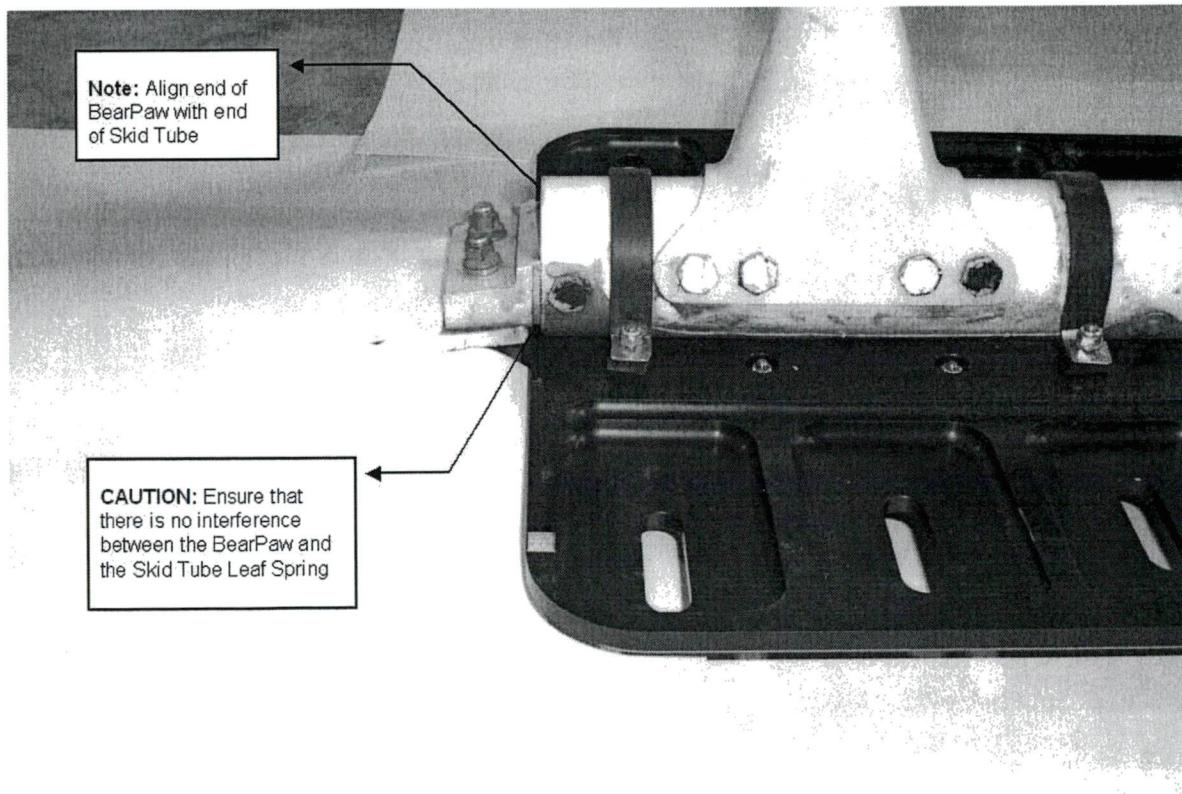
Step 3: BearPaw Installation

- Position the BearPaw under the skid as shown in Figure 1 with narrow edge pointing forward.
- Insert washers (P/N 263-0001-17) through all six bolts: 6x(261-0001-17);
- Insert bolts (P/N 261-0001-17) and washer (Washer P/N 263-0001-17) through BearPaw pad as per drawing (112-0002-00) provided at Annex A;
- Insert filler blocks (P/N314-0012-01) as per drawing (112-0002-00) provided at Annex A;

Note: The use of filler blocks (P/N314-0012-01) may be replaced or complemented by the use of washers (P/N 263-0001-17) to fill in the gap. Bolts (P/N 261-0001-17) may be replaced by longer or shorter AN4 bolts as required.

- Insert both U-shaped clips (P/N 314-0019-15) through bolts: 6x(261-0001-17);
- Insert slotted clip supports (P/N 314-0007-15) through all six bolts. Position slotted clip supports with rounded edge toward helicopter skid;
- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Max. torque on nuts 60 in.-lb;
- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

Figure 1 – BearPaw Model BP350 – Alignment on Skid



BearPaw Removal

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);

Step 2: BearPaw Removal

- Remove nuts (P/N 262-0001-17), slotted clip support (P/N 314-0007-15) on U-shaped clips (P/N 314-0019-15),
- Remove washers (P/N 263-0001-17), U-shaped clips (P/N 314-0019-15), filler blocks (P/N 314-0012-01), and remove BearPaw pad (P/N 314-0018-01);
- Inspect skid tubes to confirm serviceability
- If the skid tube shoes have been removed, re-install shoes as per reference [1];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required using data provided in Table 3.

Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

Table 3 – Weight & Balance Data

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP350	19,9 Lb 9,0 Kg	N/A	N/A	182,0 in. 462,2 cm	3621,8 in-lb 41,6 m-kg

Note: Weight and moment provided are for full kit installation.

Parts Lists

The Helitowcart BearPaw detailed parts list is as follow:

Table 4 – Parts List

Description	Qty	Part No.	Drawing no./name
BearPaw Model BP350	1	112-0002-00	VNR(112-0002-00) / BearPaw Assembly
BearPaw pad	1	314-0018-01	VNR106 / BearPaw BP350 - Pad
U Shaped Clips	3	314-0019-15	VNR107 / BearPaw BP350 - U Shaped Clips
Slotted Clip Support	6	314-0007-15	VNR089 / BearPaw - Slotted Clip Support
Filler blocks 1/4"	6	314-0012-01	VNR099 / BearPaw – Filler block ¼"
Bolts	6	261-0001-17	Bolt- AN4-14
Nuts	6	262-0001-17	Nut- MS20365-428
Washers	12	263-0001-17	Washer – AN960-416
Shrink	3	314-0021-01	BearPaw – Shrink Specifications & Install.(1"x6.25")
IceBlade Option Model OIB	4	314-0005-15	VNR086 / IceBlade Assembly
Nuts	8	262-0001-17	Nut- MS20365-428
Washers	8	263-0001-17	Washer – AN960-416

INSPECTION

Life Limited Items

There are no life limited items for the Helitowcart BearPaw.

Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured,
- Check that BearPaws are free from visible damage,
- If damage is found, verify allowable damage according to:

Table 5 – Tolerances for cracks & wear and

Annex B – BearPaw Allowable Damage Drawing (VNR106 page 2 of 2)

Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 500 flying hours or yearly whichever comes first.
- The Helitowcart BearPaw can be inspected concurrently with the helicopter landing gear inspection.
- Recommended tolerance for performance of inspection is +/- 10% of the 500 hours period.
- Following an inspection, subsequent interval shall be adjusted to meet the original schedule from time of inspection. If inspection is performed earlier than the 10% tolerance, then following inspections shall be scheduled not to exceed the above mentioned tolerance.

500 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal",
- Inspect all parts for damage & wear. See table & figure below for allowable damage,
- Replace all damaged parts,
- Replace parts worn beyond the tolerances indicated below.
- See Tolerances for cracks & wear:
 Table 5 – Tolerances for cracks & wear, &
 Annex B – BearPaw Allowable Damage Drawing (VNR106 page 2 of 2)

Table 5 – Tolerances for Cracks & Wear

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,50	0,050	
B	1,000	0,250	
C	0,375	0,075	<u>Pockets:</u> Cracks are acceptable in the Helitowcart BearPaw pocket areas to a maximum length of 0,5" provided they are 0,25" away from the stiffener radius change. Stop drill cracks with a 0,125" hole.
D	0,50	None	<u>Stiffeners:</u> NO cracks in stiffeners.

Overhaul Requirements

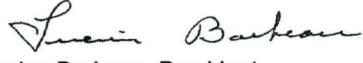
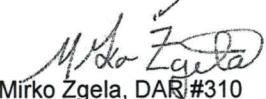
- Not applicable for the designated application of this device.

REVISIONS & APPROVAL

Revisions

Date	Rev	Nature of Revisions
Nov 20,2006	A	Initial issue
Jan 29, 2007	B	Minor editorials. Change to weight & Balance Data to reflect production model. Change in inspection schedule from 300 to 500 hours to match existing landing gear periodicity.

Approval

Internal Approval :		
Helitowcart inc.	 Lucien Barbeau, President	Jan 29, 2007 Date:
External Approval :		
Transport Canada	 Mirko Zgela, DAR#310	Jan 29, 2007 Date:

Annex A

See: BearPaw Assembly, drawing no. (112-0002-00)

Annex B

See: BearPaw Pad, drawing no. VNR106. Page 2 of 2.



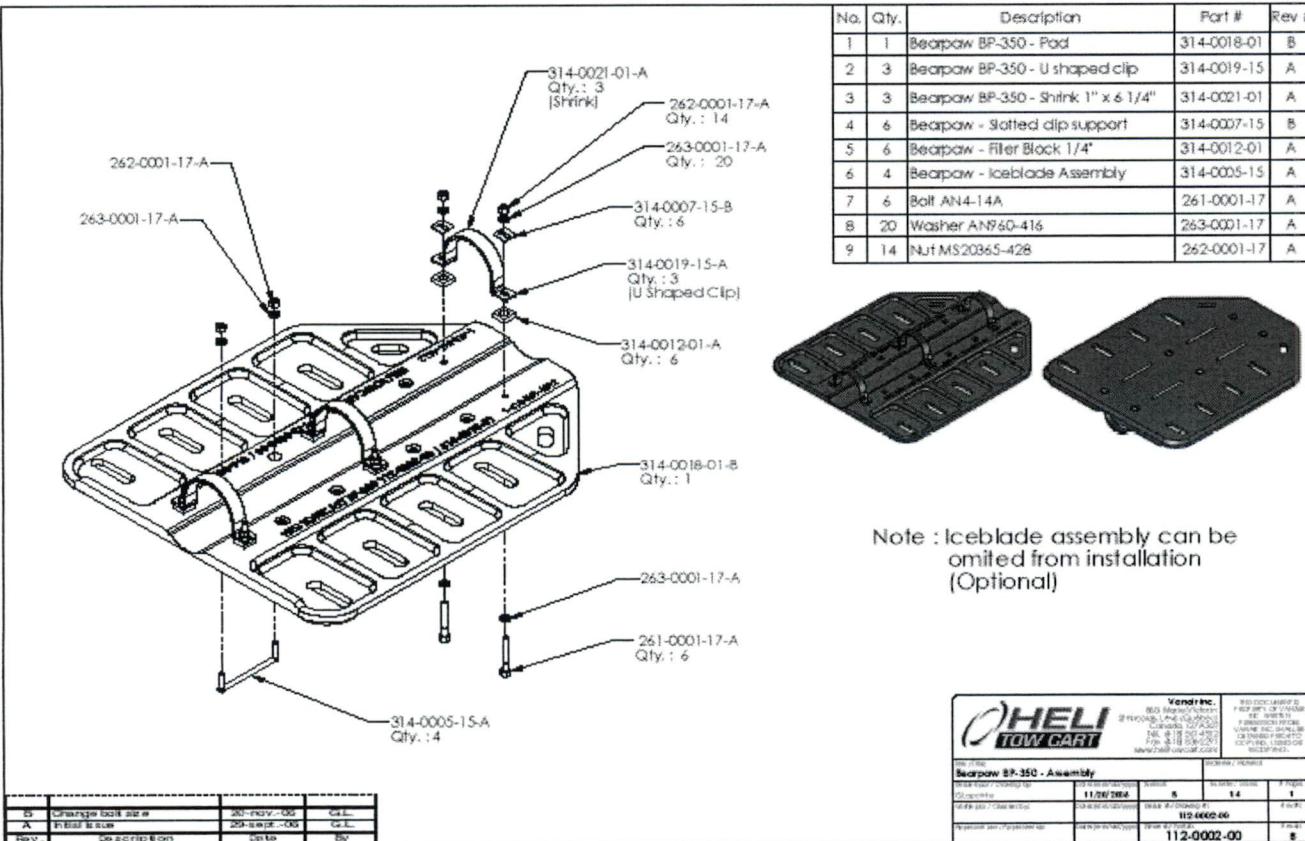
314-0020-00-B
BearPaw Model BP350
Installation Instructions – AS350/355

Annex A

BearPaw Assembly, Drawing no. VNR(112-0002-00).
P/N 112-0002-00-B

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Tel: 1-418-561-4512, Fax: 1-418-836-2291, 860 Marie-Victorin, Saint-Nicolas, Levis, Quebec, Canada G7A 3S9.
www.helitowcart.com info@helitowcart.com





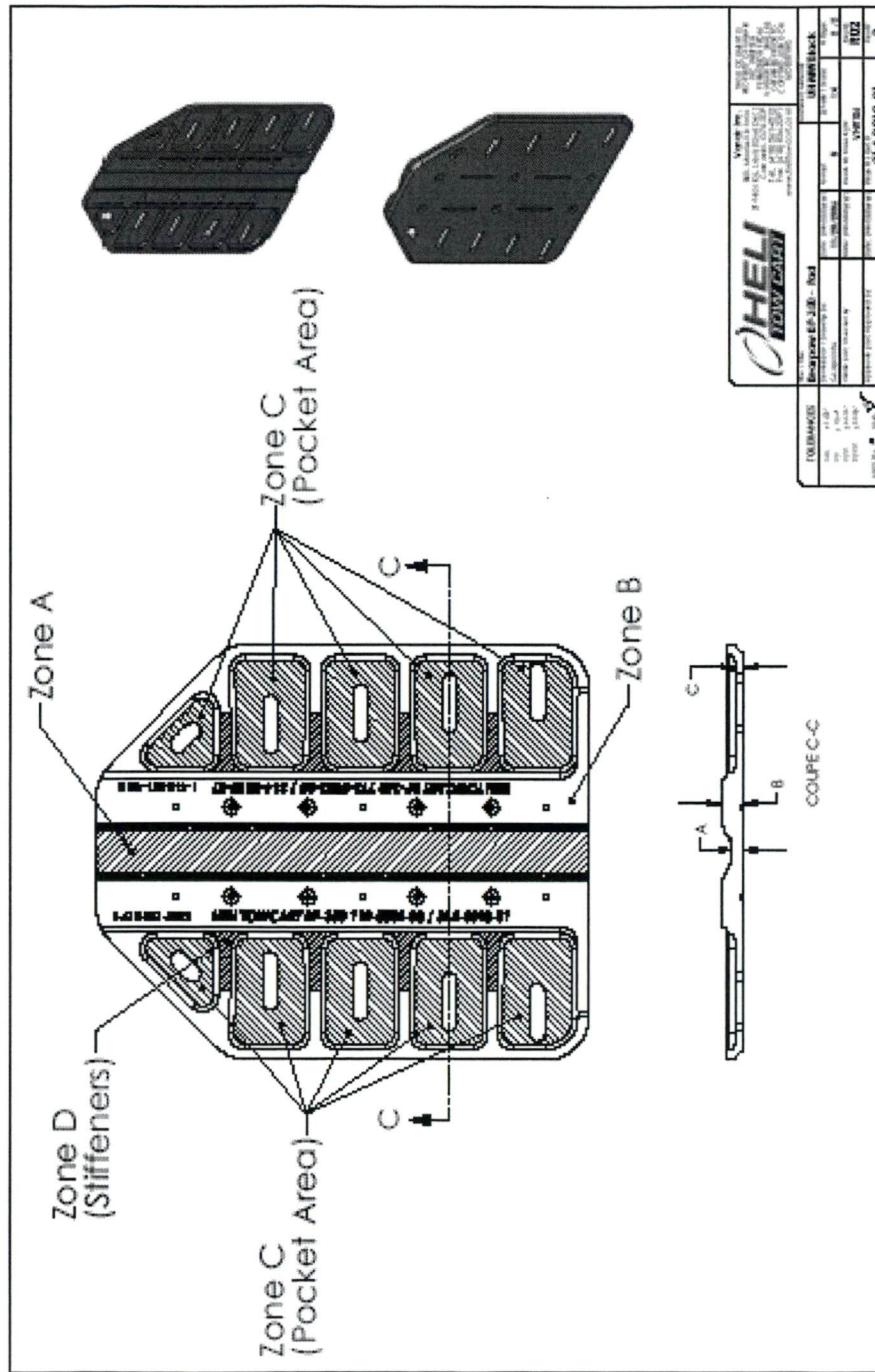
314-0020-00-B
BearPaw Model BP350
Installation Instructions – AS350/355

Annex B

BearPaw Pad, Drawing no. VNR106. Page 2 of 2.
P/N 314-0018-01-B

Page 10 of 11

Tel: 1-418-561-4512, Fax: 1-418-836-2291, 860 Marie-Victorin, Saint-Nicolas, Levis, Quebec, Canada G7A 3S9.
www.helitowcart.com info@helitowcart.com





FAX TRANSMISSION

Date: 2008-03-03

Pages: 12

To: MIRKO ZGELA Fax: 819-377-7928

From: Nathalie Barbeau

Object: REVISION DE DOCUMENTS

ACCO MIRKO,
VOIR CI-JOINT NOTES DE REVUE.
JE TE FAXE SEULEMENT PAGES ANNOTEES.

S
Salutations

Nathalie

INTRODUCTION

Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw Model BP 350 (P/N 112-0002-00 or P/N 11-0002-00-S) for the AS 350 and AS 355 series helicopters.

112

General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance when installed on your helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table (1):

Table 1 – Helitowcart Customer Support

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	860 Marie-Victorin St-Nicholas, Levis, Quebec, Canada, G7A 3S9	Tel: 1 (418) 561-4512 Fax: 1 (418) 836-2291 info@helitowcart.com

Helicopter Effectivity

This installation instruction applies to the following helicopter models:

Table 2 – Helicopter Model Effectivity

Make	Model	Transport Canada Type Certificate Data Sheet
Eurocopter	AS 350 D	H-83
Eurocopter	AS 350 D1	
Eurocopter	AS 350 B	
Eurocopter	AS 350 B1	
Eurocopter	AS 350 B2	
Eurocopter	AS 350 B3	
Eurocopter	AS 350 BA	
Eurocopter	AS 355 E	
Eurocopter	AS 355 F	
Eurocopter	AS 355 F1	
Eurocopter	AS 355 F2	

Eurocopter	AS 355 N	
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Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

INSTALLATION

BearPaw Installation

Reference Documentation:

- [1] Helicopter Maintenance Manual AS 350 or AS 355 as applicable.

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] as applicable to your helicopter model to allow a ground clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);

Note: The BearPaw Model BP350 (P/N 112-0002-00 or P/N 112-0002-00-S) can be installed with or without the skid tube wear shoes.

112

Step 2: IceBlade Installation

Note: The BearPaw Model BP350 (P/N 112-0002-00 or P/N 112-0002-00-S) can be installed with or without the IceBlades.

112

- With IceBlade Option
- Install ice blades (Qty: 4) (Iceblades P/N 314-0005-15) under BearPaw pad as per drawing (112-0002-00 or 112-0002-00-S) provided at Annex A.
- Secure ice blades with washer (Washer P/N 263-0001-17) and nut (P/N 262-0001-17).

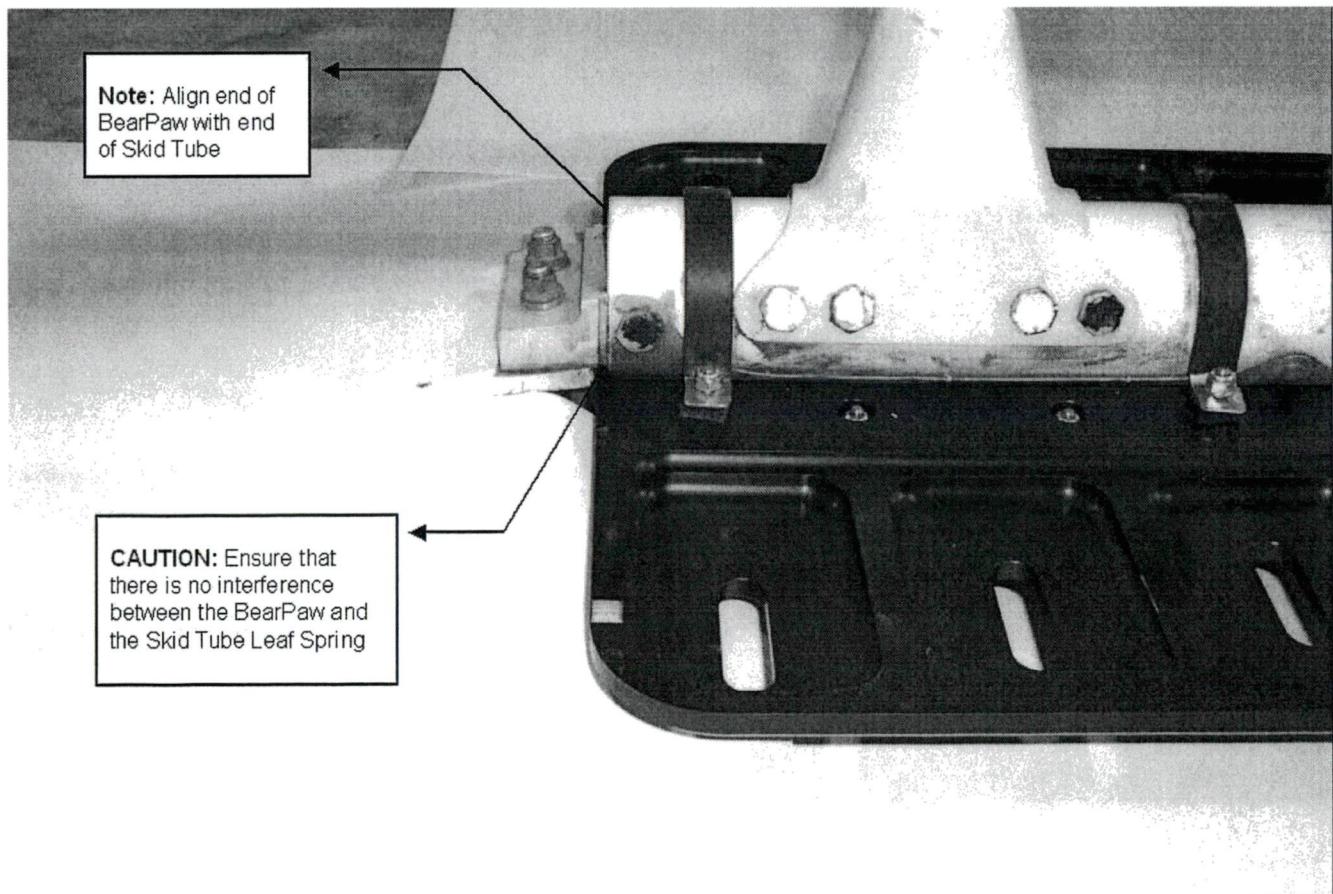
Step 3: BearPaw Installation

- Position the BearPaw under the skid as shown in Figure 1 with narrow edge pointing forward.
- Insert washers (P/N 263-0001-17) through all six bolts: 6x(261-0001-17);
- Insert bolts (P/N 261-0001-17) and washer (Washer P/N 263-0001-17) through BearPaw pad as per drawing (112-0002-00 or 112-0002-00-S) provided at Annex A;
- Insert filler blocks (P/N 314-0012-01) as per drawing (112-0002-00 or 112-0002-00-S) provided at Annex A;

Note: The use of filler blocks (P/N314-0012-01) may be replaced or complemented by the use of washers (P/N 263-0001-17) to fill in the gap. Bolts (P/N 261-0001-17) may be replaced by longer or shorter AN4 bolts as required.

- Insert both U-shaped clips (P/N 314-0019-15) through bolts: 6x(261-0001-17);
- Insert slotted clip supports (P/N 314-0007-15) through all six bolts. Position slotted clip supports with rounded edge toward helicopter skid;
- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Max. torque on nuts 60 in.-lb;
- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

Figure 1 – BearPaw Model BP350 (P/N 112-0002-00 or P/N 112-0002-00-S) - Alignment on Skid



BearPaw Removal

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);

Step 2: BearPaw Removal

- Remove nuts (P/N 262-0001-17), slotted clip support (P/N 314-0007-15) on U-shaped clips (P/N 314-0019-15),
- Remove washers (P/N 263-0001-17), U-shaped clips (P/N 314-0019-15), filler blocks (P/N 314-0012-01), and remove BearPaw pad (P/N 314-0018-01);
- Inspect skid tubes to confirm serviceability
- If the skid tube shoes have been removed, re-install shoes as per reference [1];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required using data provided in Table 3.

Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

Table 3 – Weight & Balance Data

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP350 (RN P/N 112-0002-00)	19,9 Lb 9,0 Kg	N/A	N/A	182,0 in. 462,2 cm	3621,8 in-lb 41,6 m-kg
Helitowcart BearPaw Model BP350 (RN P/N 112-0002-00-S)	18,3 Lb 8,5 Kg	N/A	N/A	182,0 in. 462,2 cm	3330,6 in-lb 39,3 m-kg

Note: Weight and moment provided are for full kit installation.

Parts Lists

The Helitowcart BearPaw detailed parts list is as follow:

Table 4 – Parts List

Description	Qty	Part No.	Drawing no./name
BearPaw Model BP350	1	112-0002-00	VNR(112-0002-00) / BearPaw Assembly VNR (112-0002-00-S) /Bear Paw Streamline Assembly
BearPaw pad ⁽¹⁾	1	314-0018-01	VNR106 / BearPaw BP350 – Pad
BearPaw pad streamline ⁽¹⁾	1	314-0018-01S	VNR106S / BearPaw BP350 – Pad Streamline
U Shaped Clips	3	314-0019-15	VNR107 / BearPaw BP350 - U Shaped Clips
Slotted Clip Support	6	314-0007-15	VNR089 / BearPaw - Slotted Clip Support

Filler blocks 1/4"	6	314-0012-01	VNR099 / BearPaw – Filler block 1/4"
Bolts	6	261-0001-17	Bolt- AN4-14
Nuts	6	262-0001-17	Nut- MS20365-428
Washers	12	263-0001-17	Washer – AN960-416
Shrink	3	314-0021-01	BearPaw – Shrink Specifications & Install.(1"x6.25")
IceBlade Option Model OIB	4	314-0005-15	VNR086 / IceBlade Assembly
Nuts	8	262-0001-17	Nut- MS20365-428
Washers	8	263-0001-17	Washer – AN960-416

Note (1): Use BearPaw Pad P/N 314-0018-01 for VNR P/N 112-0002-00 and BearPaw Pad P/N 314-0018-01-S for VNR P/N 112-0002-00-S as applicable.

INSPECTION

Life Limited Items

There are no life limited items for the Helitowcart BearPaw.

Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured,
- Check that BearPaws are free from visible damage,
- If damage is found, verify allowable damage according to:
Table 5 – Tolerances for cracks & wear and
Annex B – BearPaw Allowable Damage Drawing (VNR106 page 2 of 2 or NVR 106S page 2 of 2)



Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 500 flying hours or yearly whichever comes first.
- The Helitowcart BearPaw can be inspected concurrently with the helicopter landing gear inspection.
- Recommended tolerance for performance of inspection is +/- 10% of the 500 hours period.
- Following an inspection, subsequent interval shall be adjusted to meet the original schedule from time of inspection. If inspection is performed earlier than the 10% tolerance, then following inspections shall be scheduled not to exceed the above mentioned tolerance.

500 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal",
- Inspect all parts for damage & wear. See table & figure below for allowable damage,
- Replace all damaged parts,
- Replace parts worn beyond the tolerances indicated below.
- See Tolerances for cracks & wear:
Table 5 – Tolerances for cracks & wear, &
Annex B – BearPaw Allowable Damage Drawing (VNR106 page 2 of 2 or NVR 106S page 2 of 2)



Table 5 – Tolerances for Cracks & Wear

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,50	0,050	
B	1,000	0,250	

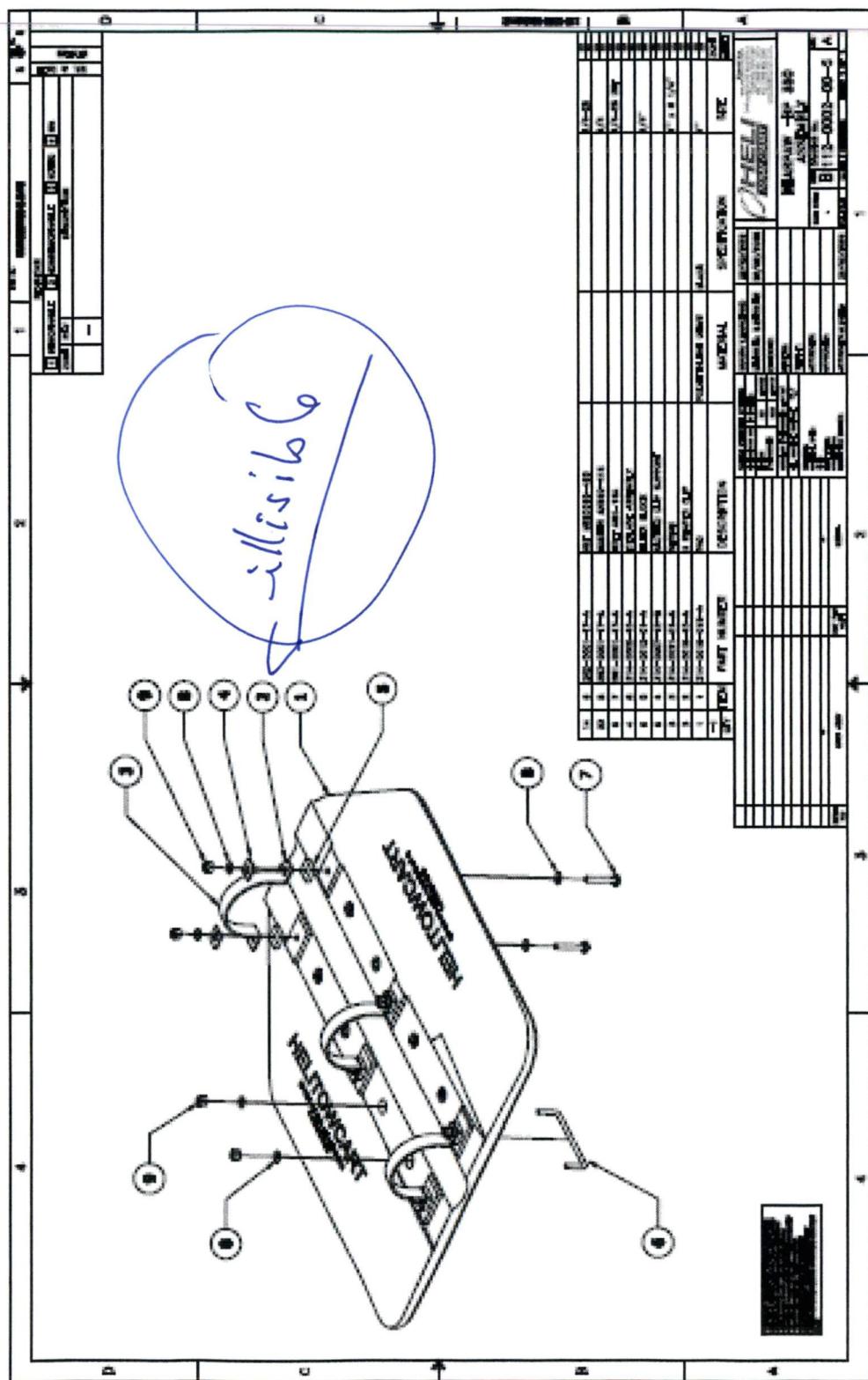
Page 6 of 16

Annex A

See: BearPaw Assembly, drawing no. (112-0002-00) or;
BearPaw Assembly, drawing no. (112-0002-00-S)

Annex B

See See: BearPaw Pad, drawing no. VNR106. Page 2 of 2 or;
BearPaw Pad, drawing no. VNR106. Page 2 of 2.
-S



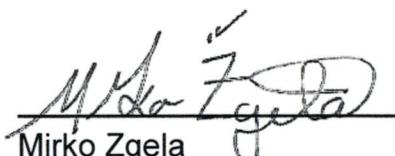
Master Document List

Helitowcart

Eurocopter Model AS 350/355 Series Helicopters Installation of BearPaw Model BP350

Report: HTC-MDL-BP-AS350/355-1000 (Rev C)

APPROVED BY:



DATE: FEBRUARY 28, 2008

Mirko Zgela

Design Approval Representative DAR #310

Revision	Revision Date	Revision of Entry	Entered by
A	Nov 22, 2006	Initial issue	N/A
B	Jan 28, 2007	Revision performed to the Installation Instructions (Doc # HTC-314-0020-00-B).	M.Z.
C	Feb 28, 2007	Addition of streamline pad configuration.	M.Z.



1.0 MASTER DOCUMENTS

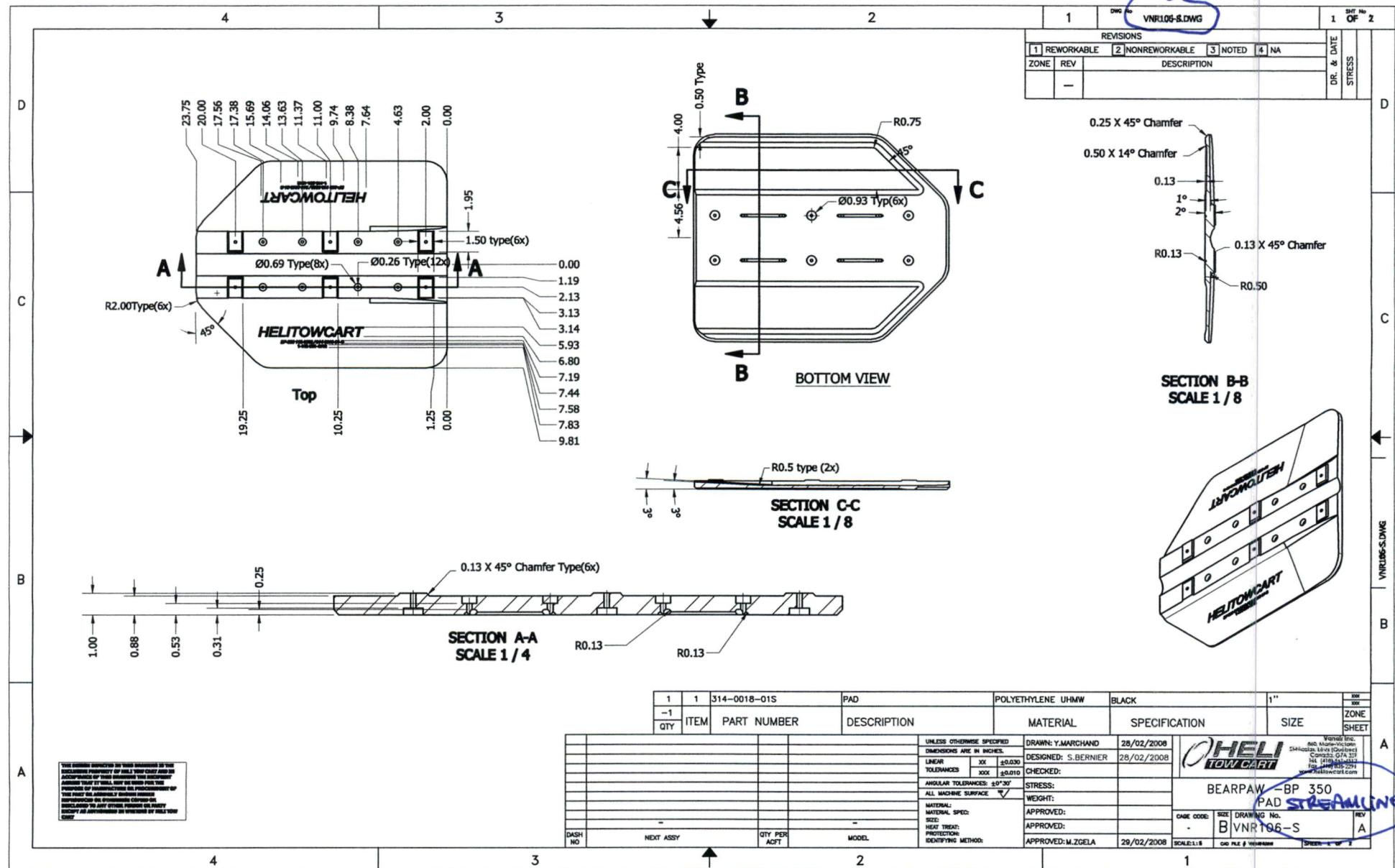
Document #	Title	Revision Status	Approval by	Date
AAC-CPL-BP-AS350/355-1000	Compliance Plan – Eurocopter Model AS350/355 Series Helicopters – Installation of BearPaw Model BP350	NC	DAR 310	Nov 22, 2006
HTC-314-0020-00-B <i>(KC)</i>	BearPaw Model BP350 – Installation Instructions – AS350/355 Series Helicopters	C	DAR 310	Feb 28, 2008
AAC-STR-BP-AS350/355-1000	Structural Substantiation – Helitowcart Inc. BearPaw Model BP350	NC	DAR 310	Nov 20, 2006
AAC-FTR-C-GZNC	Simple External Modification – Applicant's Flight Test Plan/Report	NC	DAR 310	Nov 21, 2006

2.0 MASTER DRAWINGS

Drawings #	Title	Revision Status	Approval by	Date
112-0002-00	BearPaw BP350 - Assembly	B	DAR 310	Nov 20, 2006
112-0002-00-S	BearPaw BP350 – Assembly Streamline	A	DAR 310	Feb 28, 2008
VNR084	BearPaw – Iceblade	R01	DAR 310	Apr 24, 2006
VNR085	BearPaw – Iceblade Threaded Rod	R01	DAR 310	Apr 24, 2006
VNR086	BearPaw – Iceblade Assembly	R01	DAR 310	Apr 24, 2006
VNR106	BearPaw BP350 - Pad	R02	DAR 310	Sept 26, 2006
VNR106-S	BearPaw BP350 – Pad Streamline	R01	DAR 310	Feb 28, 2008
VNR107	BearPaw BP350 – U Shaped Clip	R01	DAR 310	Sept 29, 2006
VNR089	Bearpaw – Slotted Clip Support	R04	DAR 310	July 31, 2006
VNR099	Filler Block ¼"	R01	DAR 310	Aug 8, 2006

3.0 REFERENCE DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
314-0009-01-A	Ultra High Molecular Weight Polyethylene – Typical Properties	A	N/A	May 24, 2006
314-0008-01-A	Propriétés du UHMW TIVAR	A	N/A	May 24, 2006
314-0017-05-A	Heat Shrink Specifications	A	N/A	Sept 6, 2006



4	3	↓	2
D			D
C			C
B			B
A			A
DWG No. VNR106-S.DWG S			
REVISIONS 1 REWORKABLE 2 NONREWORKABLE 3 NOTED 4 NA			
ZONE REV DESCRIPTION —			
DR. & DATE STRESS			
SHT No 2 OF 2			

NOTE:

1. ZONE E = ALL NON-SHADED AREA

TOP VIEW

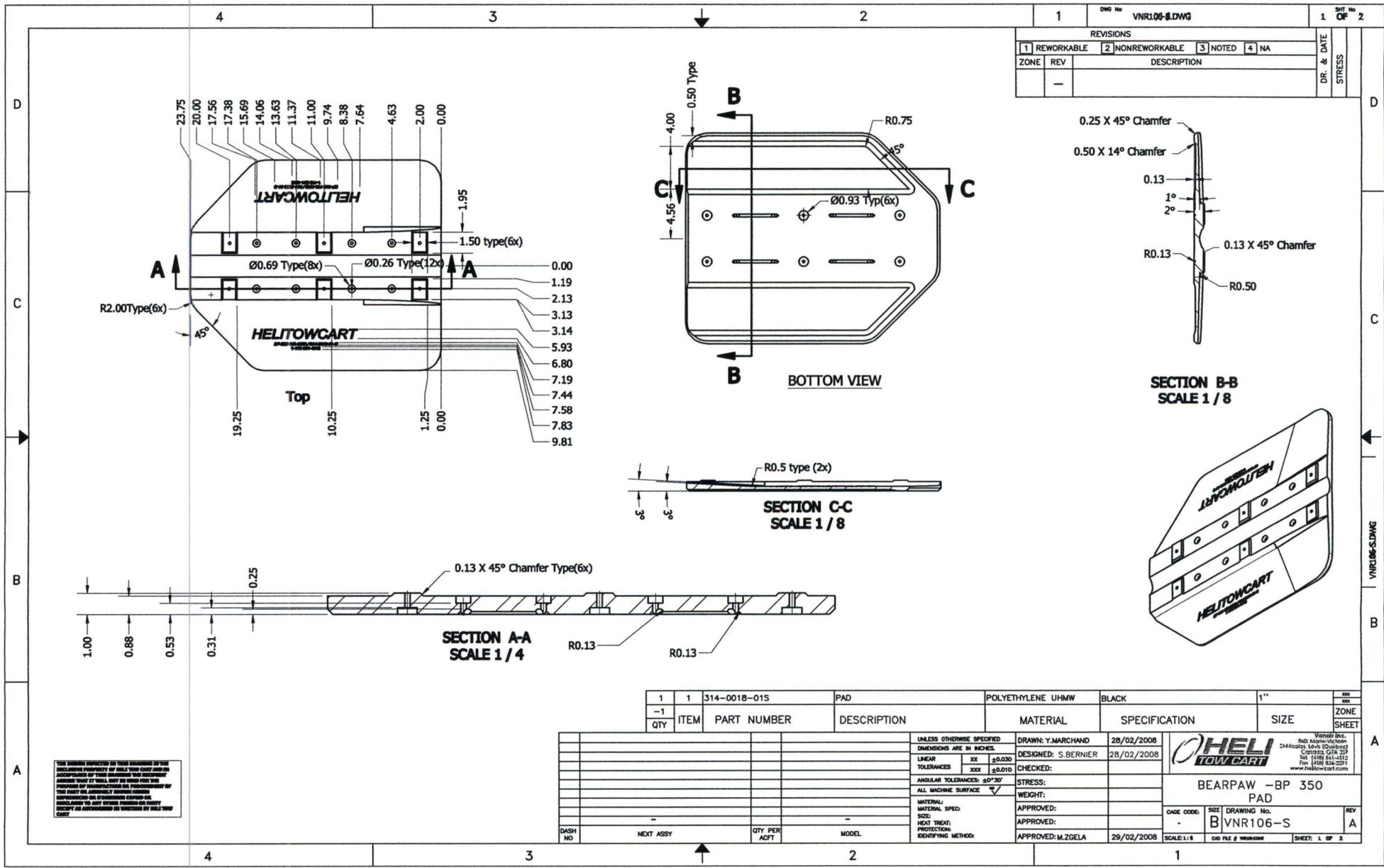
BOTTOM VIEW

SIDE VIEW

314 - 0018 - 01-5

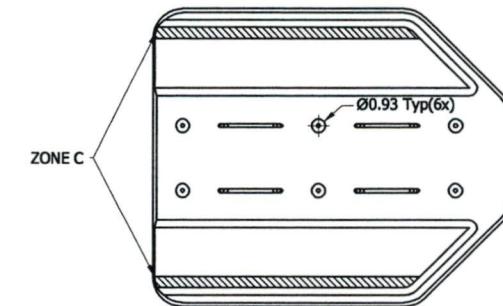
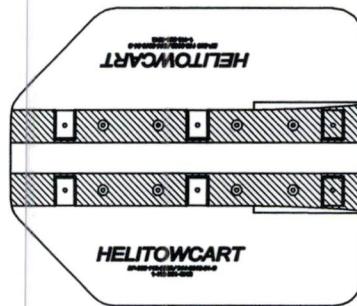
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DASH NO	NEXT ASSY	QTY PER ACFT	MODEL					

BEARPAW -BP 350 RAD - STREAMLINE

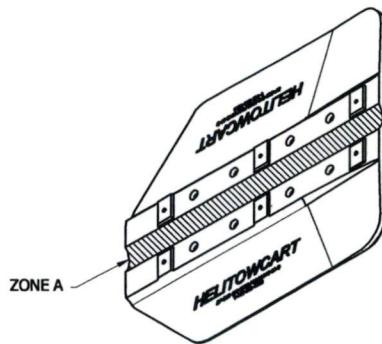


4 3 2 1 DWG No VNR106-S.DWG SHEET NO 2 OF 2

REVISIONS			
1	2	3	4 NA
ZONE REV DESCRIPTION			48
-			DR. STRESS



TOP VIEW



BOTTOM VIEW

NOTE:

1. ZONE E = ALL NON-SHADED AREA

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-1	QTY	ITEM	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE	ZONE SHEET
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				LINEAR TOLERANCES: ±0.0000	DESIGNED: S.BERNIER 28/02/2008			
				XXX ±0.0010	CHECKED:			
				ANGULAR TOLERANCES: ±0°30'	STRESS:			
				ALL MACHINE SURFACE ✓	WEIGHT:			
				MATERIAL: MATERIAL SPEC: SIZE: HEAT TREAT: PROTECTION: IDENTIFYING METHOD:	APPROVED:			
					APPROVED:			
					APPROVED:			
					APPROVED: M.ZGELA 29/02/2008	SCALE: 1:1	CAD FILE # VNR106-S	REV A

OHELI
TOW CART
BEARPAW -BP 350
PAD

4 3 2 1 DWG No VNR106-S.DWG SHEET 1 OF 2